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EXAMINER

TSAI, HENRY

ART UNIT	PAPER NUMBER
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2183

DATE MAILED: 07/17/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/639,946

Applicant(s)

NAGAYA ET AL.

Examiner

Henry W.H. Tsai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19,21-25,32-35,37-40 and 58-89 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9,21-25,32-35,37-40, 58-65, 68-82, and 86-89 is/are rejected.
- 7) ☒ Claim(s) 66,67 and 83-85 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

2. Claims 62 and 63 objected to because of the following informalities: In claim 62, line 1, "tip" should read --tips--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this

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application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 19, 21-23, 24, and 59-61, 68-72, 74-76, 77, 78, and 86-89 are rejected under 35 U.S.C. 102(a) as being anticipated by Betman et al. (6,074,137).

Referring to claim 1, Betman et al. discloses the claimed invention comprising, as shown in Fig. 7, a first edge corner (17, see Fig. 7) having a corner angle (B, see Fig. 7) less than 90° , and an adjacent second edge corner (17, see Fig. 7) having a corner angle (B, see Fig. 7) of less than 90° , wherein the tip (13, see Fig. 7) is formed of an substantially quadrilateral-shaped plate (15, see Fig. 7). Note the B angle is close to 90 degrees (see Col. 5, lines 6-9), the shape of the tip is reasonably interpreted as an substantially quadrilateral-shaped plate.

Referring to claim 68, Betman et al. discloses, as claimed, a tip (13, see Fig. 7) comprising a substantially planar plate (15, see Fig. 7) including a first edge corner (17, see Fig. 7) having a corner angle (B, see Fig. 7) of less than 90° , and an adjacent second edge corner having a corner angle (B, see Fig. 7) of less than 90° .

Referring to claim 77, Betman et al. discloses, as claimed, a cutting tool comprising: a tool body (2, see Fig. 1) having a

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distal end(5, see Fig. 1); and a first tip (4, see Fig. 1 or insert 13, see Fig. 7) mounted to the distal end (5, see Fig. 1) of the tool body (2, see Fig. 1), said first tip comprising a substantially planar plate(15, see Fig. 7) including a first edge corner (17, see Fig. 7) having a corner angle (B, see Fig. 7) of less than 90° , and an adjacent second edge corner (17, see Fig. 7) having a corner angle (B, see Fig. 7) of less than 90° , wherein at least one of the first edge corner and the second edge corner is arranged along an outer periphery of the distal end (5, see Fig. 1) of the tool body (2, see Fig. 1).

Note Betman et al. also discloses the limitations such as:

in claims 21 and 69, a third edge corner(17, see Fig. 17) having a corner angle of less than 90° ;

in claims 22 and 70, a cutting edge (16, on the left side, see Fig. 7) extending between the first edge corner and the second edge corner is not parallel to an opposite cutting edge (16, the on right side, see Fig. 7);

in claims 23 and 71, Betman et al. also discloses the at least one side surface(13c, See Fig. 10) outwardly inclines from the seating face to the cutting edge; a

in claims 24 and 72, the seating face(15, see Fig. 7) being parallel to the cutting face(3);

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in claims 59, 74 and 86, said tip has two opposing cutting edges defined as long cutting edges (21, 21, see Fig. 7) and another two opposing cutting edges (21, 21, see Fig. 7) defined as short cutting edges, and wherein said long cutting edges are not parallel to one another (see Fig. 7);

in claims 60, 75 and 87, one of said short cutting edges extends between the first edge corner (17, see Fig. 7) and the second edge corner (17, see Fig. 7);

in claims 61, 76 and 88, said first edge corner (17, see Fig. 7) is defined by a first cutting edge and a second cutting edge; said first cutting edge includes a main cutting tooth portion (the edge portion 16 closer to the central portion 21, see Fig. 7) and a sub-cutting tooth portion (the edge portion 16 closer to the corner 17, see Fig. 7); said sub-cutting tooth portion is provided adjacent a joint between said first cutting edge and said second cutting edge; said sub-cutting tooth portion is slightly inclined with respect to main cutting tooth portion (since the inclined angle at the edge portion 16 varies from the corner 17 to the central portion 21, see Fig. 7); and wherein said corner angle of said first edge corner (17, see Fig. 7) is defined as an angle (B, see Fig. 7) between said main cutting tooth portion of said first cutting edge and said second cutting edge;

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in claim 78, at least one of the first edge corner (17, see Fig. 7, see also Fig. 1) and the second edge corner (17, see Fig. 7, see also Fig. 1) is arranged along a front edge of the distal end (5, see Fig. 1) of the tool body (2, see Fig. 1); and

in claim 89, said first tip has a third edge corner (17, see Fig. 7, see also Fig. 1) having a corner angle (B, see Fig. 7) of less than 90° .

5. Claims 32-35, 37, 38, 40, 58, 64 and 65 are rejected under 35 U.S.C. 102(e) as being anticipated by Satran et al. (6,270,292).

Referring to claim 32, Satran et al. discloses the claimed invention comprising, as shown in Figs. 1 and 4, a tool body (27, see Fig. 8A) having a distal end (see Fig. 8A); and a plurality of tips (1a, 1b, see Fig. 8A) mounted to the distal end of the tool body (27, see Fig. 8A); each tip of the plurality of tips comprising a plate of quadrilateral-shaped plate(3, see Fig. 4, note the plate having a thickness 18, see Fig. 3), the plate having a first corner(8, see Fig. 4) having a corner angle less than 90° , and an adjacent second edge corner(8, see Fig. 4) having a corner angle of less than 90° , wherein at least one of the first and second corners(8, 8) is arranged to

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project along an outer periphery of the distal end of the tool body (27, see Fig. 8A).

Referring to claim 33, Satran et al. discloses a cutting edge (6a, or 6b, se Fig. 8A) extending from the first corner inward toward the third corner in a radial direction of the tool body is defined as a front cutting edge extending to a rotation axis of the tool body (27, see Fig. 8A).

Referring to claim 34, Satran et al. discloses each tip of the plurality of tips (1a, 1b, see Fig. 8A) has two opposing cutting edges defined as long cutting edges (the longer cutting edges (11, 11) on the tips 1a, 1b, see Figs. 1 and 8A) and another two opposing cutting edges defined as short cutting edges (the shorter cutting edges (7, 7) on the tips 1a, 1b, see Figs. 1 and 8A); one of the long cutting edges in a first of the plurality of tips projecting towards the distal end of the tool body (27, see Fig. 8A) is defined as a first front peripheral cutting edge and one of the short cutting edges in the first of the plurality of tips (1a, 1b, see Fig. 8A) is defined as a first outer peripheral cutting edge; and one of the short cutting edges in a second of the plurality of tips projecting towards the distal end of the tool body (27, see Fig. 8A) is defined as a second front peripheral cutting edge and one of the

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long cutting edges in the second of the plurality of tips (1a, 1b, see Fig. 8A) is defined as a second outer peripheral cutting edge (see Fig. 8A).

Referring to claim 35, Satran et al. discloses: the first and second outer peripheral cutting edges (on 1c and 1c tips, see Fig. 8A) are oriented such that rotation paths of the first and second outer peripheral cutting edges overlap when the tool body is rotated around a rotation axis (in the D rotation direction, see Fig. 8A).

Referring to claim 37, Satran et al. discloses: each tip of the plurality of tips has a third corner (8, see Fig. 4) having a corner angle of less than 90°.

As to claim 38, Satran et al. also discloses the at least one side surface (12, See Fig. 3) outwardly inclines from the seating face to the cutting edge (11, See Fig. 3).

As to claim 40, Satran et al. also discloses the seating face (12 or 22, see Figs. 1 and 2) is not parallel to the cutting face (3, See Fig. 1).

Referring to claim 58, Satran et al. discloses: all of the plurality of tips (1a, 1b, see Fig. 8A) are identical in shape.

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Referring to claim 64, Satran et al. discloses said plurality of tips comprises at least four tips (1a, 1b, 1c, see Fig. 8A, actually totally there are four tips shown in Fig. 8A).

Referring to claim 65, Satran et al. discloses: said first corner is defined by a first cutting edge (11, see Fig. 1) and a second cutting edge (7, see Fig. 1); said first cutting edge includes a main cutting tooth portion (the partial portion of cutting edge 11 closer to the central portion thereof, see Fig. 1) and a sub-cutting tooth portion (the partial portion of the corner 8, see Fig. 1); said sub-cutting tooth portion is provided adjacent a joint (the rest partial portion of the corner 8, see Fig. 1) between said first cutting edge and said second cutting edge; said sub-cutting tooth portion is slightly inclined with respect to main cutting tooth portion; and wherein said corner angle of said first corner is defined as an angle between said main cutting tooth portion (11, see Fig. 1) of said first cutting edge and said second cutting edge (7, see Fig. 1).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 25 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betman et al. view of Swanson (1,912,666)

Betman et al. discloses the claimed invention except for: the seating face being not parallel to the cutting face.

Swanson discloses a cutting tool(11b) comprising a cutting insert (13b) having the seating face being not parallel to the cutting face (see Fig. 7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to Betman et al.'s tool to comprise the seating face being not parallel to the cutting face, as taught by Swanson, in order to effectively

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securing the Betman et al.'s cutting insert to the toolholder thereof.

8. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satran et al. in view of Tukala et al. (5,622,461).

Satran et al. discloses the claimed invention except for: the seating face being parallel to the cutting face.

It is well known in the art that the relative orientation of the cutting face to the seating face is just an alternative arrangement as required.

Tukala et al. discloses a cutting tool comprising cutting tips (16, 17, see Fig. 2) having the seating face being parallel to the cutting face.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Satran et al.'s tool to comprise the seating face being parallel to the cutting face, as taught by Tukala et al., since it is just an alternative arrangement comparing with that of Satran et al.'s tool.

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9. Claims 32, 62, 63, and 79-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betman et al. in view of Cassidy (3,136,031).

Betman et al. discloses the claimed invention except for: a second tip mounted to the distal end of the tool body wherein at least one of the first edge corner and the second edge corner of said second tip is arranged along the outer periphery of the distal end of the tool body (claim 79); and a plurality of tips mounted to the tool body (claim 32).

Cassidy discloses a cutting tool comprising: a second tip (30 see Figs. 2 and 3) mounted to the distal end (11, see Fig. 2) of the tool body (10, see Fig. 2) wherein at least one of the first edge corner and the second edge corner of said second tip (30 see Figs. 2 and 3) is arranged along the outer periphery of the distal end of the tool body (10, see Fig. 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Betman et al.'s tool to comprise: a second tip mounted to the distal end of the tool body wherein at least one of the first edge corner and the second edge corner of said second tip is arranged along the outer periphery of the distal end of the tool body; and a plurality of tips mounted to the tool body, as taught by Cassidy, in order to increase the cutting function of a separate

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cuts for the Betman et al.'s tool (see also Col. 1, lines 21-26).

Note the further limitations of claims 62 and 63 are disclosed by Betman et al. as set forth in claims 59 and 60 respectively.

As to claims 80-82 regarding using the third tip and the fourth tip both are identical in shape. It is well known in the art to use four identical cutting tips in the same toolholder in order to increase the cutting power and function, as taught by Cassidy, set forth above. Further, as shown in St. Regis Paper Co. v Bemis Co. 193 USPQ 8 (7th Cir. 1977), to duplicate parts for multiple effects generally does not provide patentable weight to the claimed invention.

Allowable Subject Matter

10. Claims 66, 67, and 83-85 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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11. The following is a statement of reasons for the indication of allowable subject matter:

For claim 66, Satran et al. is the closest art. However, Satran et al. does not teach or fairly suggest a cutting tool comprising: the first tip and the third tip are provided within a first groove on said tool body, said first tip and said third tip being provided at different locations along the axis of rotation, said first tip and said third tip being spaced apart along the axis of rotation; and comprising the second tip and the fourth tip are provided within a second groove on said tool body, said second tip and said fourth tip being provided at different locations along the axis of rotation, said second tip and fourth tip being spaced apart along the axis of rotation (claim 66).

For claims 83 and 84, Betman et al. is the closest art. However, Betman et al. does not teach or fairly suggest a cutting tool comprising: each tip of said first tip, said second tip, said third tip, and said fourth tip have two opposing cutting edges defined as long cutting edges and another two opposing cutting edges defined as short cutting edges; one of said long cutting edges of said first tip extends along the outer periphery; one of said short cutting edges of said second tip extends along the outer periphery; one of said long cutting

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edges of said third tip extends along the outer periphery; and one of said long cutting edges of said fourth tip extends along the outer periphery (claim 83); and said tool body has an axis of rotation; said first tip and said third tip are provided within a first groove on said tool body, said first tip and said third tip being provided at different locations along the axis of rotation, said first tip and said third tip being spaced apart along the axis of rotation; and said second tip and said fourth tip are provided within a second groove on said tool body, said second tip and said fourth tip being provided at different locations along the axis of rotation, said second tip and fourth tip being spaced apart along the axis of rotation (claim 84).

Response to Arguments

12. Applicant's arguments mailed 5/2/03 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is

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reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Henry Tsai whose telephone number is (703) 308-7600. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisor, Eddie Chan, can be reached on (703) 305-9712. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to

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the TC 2100 receptionist whose telephone number is (703) 305-3900.

15. In order to reduce pendency and avoid potential delays, Group 2100 is encouraging FAXing of responses to Office actions directly into the Group at fax number:

Official faxes: 703-746-7239; and

After Final faxes: 703-746-7238;

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HENRY W. H. TSAI
PRIMARY EXAMINER

July 11, 2003